

## **Historic, archived document**

Do not assume content reflects current scientific knowledge, policies, or practices.



52A  
A85 J62

# JOINT COUNCIL ON FOOD AND AGRICULTURAL SCIENCES

Secretariat:  
Rm. 351A, Admin. Bldg.  
U.S. Department of Agriculture  
Washington, D.C. 20250

MAR 29 '85

PROCEEDINGS OF THE  
JOINT COUNCIL ON FOOD AND AGRICULTURAL SCIENCES MEETING  
APRIL 14-16, 1982  
ALEXANDRIA, VIRGINIA

3	Kendrick
2	Barnes B
	Kelly
1	PUR M B
	Info
	Evelyn
	Andrey
4	Files

## Joint Council Members and Alternates:

James H. Anderson, Cochairman  
Anson R. Bertrand, Cochairman  
A. R. Baldwin  
Robert E. Buckman  
Jane Coulter  
Richard A. Farley  
John L. Gerwig  
Allan D. Goecker  
Mary Nell Greenwood  
R. J. Hildreth  
Dawson Johns  
J. P. Jordan  
Terry B. Kinney, Jr.  
John Lee  
Keith Shea  
Richard A. Skok  
George Sledge  
Charles Smallwood  
W. I. Thomas  
John G. Stovall, Executive Director  
Susan G. Schram, Executive Secretary

## Regional Council Representatives:

George Kriz, Chairman, Southern Regional  
Council  
Gilbert Porter, Chairman, Northeast  
Regional Council

## National Committee Representatives:

Bud Amburn, Chairman, National Extension  
Committee  
Keith Huston, Cochairman, National  
Agricultural Research Committee

## Speakers:

Robert Clodius, President, NASULGC  
Pierre Crosson, Resources for the  
Future  
Kenneth Farrell, Resources for the  
Future  
Jack Marvel, Monsanto, Inc.  
Ralph McCracken, USDA, SCS  
Kelley White, USDA, ERS  
Harold L. Wilcke, Ralston Purina

## Others Present:

Tom Adams, House Agriculture  
Committee Staff  
Ralph Adkins, University of Maryland  
Ira Branson, USDA/S&E  
Mark Buchanan, Director-at-Large,  
Western Association of State  
Agricultural Experiment Stations  
Robert L. Christensen, USDA/CSRS  
D. F. Crossan, University of  
Delaware  
Horace J. Davis, USDA/FAS, (retired)  
John O. Dunbar, Kansas State  
University  
Raymond Floate, Chairman, National  
Agricultural Research and Extension  
Users Advisory Board  
Barbara Fontana, USDA/S&E  
Laura Fox, USDA/S&E  
Kennan Garvey, USDA/OBPA  
Bruce Greenshields, USDA/ERS  
Helene Guttman, USDA/S&E  
Bille Hougart, USDA/S&E  
Jerry Jorgenson, House Agriculture  
Committee Staff  
John Kermicle, Office of the  
Secretary, Public Liaison  
David Kincaid, USDA/OICD

6/29

Others Present:

Jean Lipman-Blumen, Center for Policy  
Research  
Gene M. Love, Pennsylvania State  
University  
Patricia A. Madson, USDA/S&E  
Larry Miller, USDA/S&E  
John Naegele, USDA/S&E  
Ezra A. Naughton, USDA/S&E  
Paul O'Connell, USDA/S&E  
Craig Oliver, Director of Extension,  
University of Maryland  
Dan Panshin, USDA/ES  
Mike Phillips, Office of Technology  
Assessment  
Barbara Pickering, Student Intern,  
Cornell University  
Robert D. Reinsel, USDA/S&E  
Helen Roberts, Association of American  
State Colleges and Universities  
Tom Ronningen, Director-at-Large, Northeast  
Association of State Agricultural  
Experiment Stations  
Philip Ross, NRC/BARR  
Sam Shaffer, USDA/S&E  
Laura Sims, Pennsylvania State University  
Larry V. Summers, USDA/S&E  
Jim Tavares, NRC/NAS  
Paul Truitt, Agricultural Research Institute  
Margaret Van Meter, Member, National Agricultural  
Research and Extension Users Advisory Board  
Morris D. Whitaker, USAID-S&T/FA  
Pearis Wilson, Kansas State University - Phillipines

1. Presiding Cochairmen: James H. Anderson and Anson R. Bertrand.
2. The Proceedings of the January 13-15, 1982, meeting of the Joint Council were approved.
3. Updates: Executive Director
  - John Stovall reviewed the agenda for the Joint Council meeting and the results of the Council survey regarding priority policy issues in science and education. These policy issues will be discussed during the Friday Council session.
4. Updates: Cochairmen
  - James Anderson reported that he and R. J. Hildreth will be meeting with Secretary Block on Friday, prior to his meeting with the Joint Council, to discuss the role of the Joint Council and the Secretary's plan for utilizing its output.
5. Executive Committee Report

Cochairman Anderson reported that the Executive Committee met March 10 and April 14, 1982. Discussion items included:

  - a. Common Program Structure
    - The common program structure has been used as a framework for development of the 1984 budget for science and education; for the inventory of food and agriculture science and education programs across the Federal Government; and as a framework for the Users Advisory Board Report.
    - Several suggestions about the common program structure have been given and some "fine tuning" may be needed at an upcoming Joint Council meeting.
  - b. Needs Assessment
    - The Executive Committee has continued to work with Bob Buckman's "implementation" committee in planning for the needs assessment and other Title XIV reports required of the Joint Council.
    - Planning for the needs assessment has been a major Executive Committee concern.
    - Bob Buckman will provide a full progress report on this item on Thursday.



c. June 30 Priorities Report

- The Executive Committee also spent considerable time planning for the Council's priorities report due June 30, 1982.
- The survey returned to the staff and interaction during this meeting will provide input for the report.
- On Friday several science and education policy issues will be discussed. Joint Council positions on these issues will also be a part of the June 30 report.

6. Report from the Users Advisory Board

- Ray Floate, this year's UAB chairman, updated the Council on the UAB meeting and its February 1982 report Appraisal of the Proposed Budget for Food and Agricultural Sciences.
- Floate advocated increased communication between the Joint Council and the UAB and a more unified agenda for the two groups.
- The UAB does not yet have its full complement of new members. Seven members remain to be appointed.
- The board will meet May 18-20, 1982. The meeting will include a visit to Beltsville and writing of the UAB July 1 report.
- Robert Buckman asked if it is appropriate for science and education related field personnel to contact and provide information to UAB members.
- Floate advised that any citizen with interest in these matters should feel welcome to contact UAB members.
- Cochairman Anderson asked what thoughts contributed to the UAB decision to advocate reduction in Federal Extension and Cooperative State Research Service staff.
- Floate recalled little opposition to the viewpoint that Federal staff should be cut. It was felt that Federal programs are often imposed on local extension personnel that are inappropriate for local communities. The UAB felt that administration of State programs should take place closer to the level where the program is implemented.
- John Gerwig expressed the opinion that many functions are more efficiently performed by the Federal staff rather than duplicating those functions in all States.

- Extension and CSRS have several activities underway to deal with changes in the Federal function.
- A five-person committee will make an assessment of the impact of the decision to trim Federal staff on behalf of the National Association of State Universities and Land-Grant Colleges (Division of Agriculture).

7. Science and Education Priorities: Joint Council Recommendations

a. Introduction

- Cochairman Bertrand explained that input from this session would be used to formulate the June 30, 1982, priorities report of the Joint Council as mandated by Title XIV.
- Bertrand welcomed representatives from the ESCOP, ECOP, CAHA and RICOP budget committees to the session.
- Robert Buckman, chairman of the implementation committee for mandated Joint Council reports, stressed the importance of the exercise in providing guidance as the June 30 priorities report is formulated. It is the desire of the committee that a hard-hitting explicit report, rising above parochial interests, be forwarded to the Secretary.

b. Procedure for Priorities Discussion

- Paul O'Connell, USDA staff, explained that regional, as well as national priorities, would be addressed during this session. The report that moves forward to the Secretary will give equal status to both regional and national priorities.
- An important concern of many people on the Council is the need to maintain a strong base program so that the system can respond to emergencies as they arise. However, top administrative officials and Congress have their own agendas and will not respond to generalities. Budgets must be expressed in terms of highly visible programs that can be supported by those in power. These two views need to be merged.
- The Council must link this activity with the budget development efforts being conducted in the system (COPS, professional societies, science and education groups, UAB, etc.).
- O'Connell divided the Council into groups representing the North Central, Northeast, Southern, and Western Regions. Each group was asked to determine the top three to four regional priorities, plus a statement for the Secretary and Assistant Secretary to present to OMB

and other administrative officials in support of science and education programs.

c. Results of Regional Priority Discussions

The following priorities were identified by region.

(1) Northeast Region

- Fundamental research.
- Plant and animal production efficiency.
- Expertise development.
- People, communities, and nutrition.

(2) Southern Region

Southern Emphasis:

- Economics of soil and water conservation.
- Forest management and production practices for southern forest lands.
- Systems of production (beef/forage, aquaculture, poultry, soybeans).

Recommendations for National Emphasis:

- Rapid information delivery systems for users of the food and agriculture system.
- Basic and long-term high-risk applied research.
- Better understanding of factors affecting foreign trade of agricultural and forest production.
- Family resource management.

(3) North Central Region

Overall Recommendations:

Maintain the educational, research and extension, and human resource base that supports agriculture and forestry. This resource base is currently addressing the needs of the North Central region.



Priority needs:

- (a) Mission-oriented basic research.
- (b) Exploitation of electronic technology for communication, marketing and decisionmaking.
- (c) Soil and water management and conservation.
- (d) Renewable resources extension.

(4) Western RegionWestern Emphasis:

- Programs to expand supplies, protect the quality, and improve efficiency of use and management of water.
- Programs for improved productivity of forestry, crops, range and livestock in the West.
- Programs to improve the development and dissemination of knowledge and technology for agricultural management and policy decisions.
- Programs to improve supply, use, and conservation of energy.

Recommendation For National Priority

- Maintain viability of human and physical capacity to address changes that occur in the biological, social, and political environment and to meet emergencies. (The current system is progressive and responsive and must be sustained in the National interest.)

d. Results of National Priorities Discussion

- Paul O'Connell cited common priorities which surfaced from all four regional discussions (1) mission oriented, fundamental research; (2) production systems (with unique regional concerns); (3) technology transfer (including research, extension, and teaching needs); (4) natural resources (soil and water management). Other concerns included expertise development and maintenance of the capacity and ability of the basic food and agriculture science and education system.
- Following discussion, the Council agreed on the following national areas of emphasis (areas of emphasis were not prioritized):

Overall Priority:

Maintain and improve capacity of the food and agriculture science and education system to meet the food needs of the twenty-first century (maintain research, extension, teaching base; stress expertise development).

Specific Areas of Emphasis:

- Better understanding of factors affecting foreign trade
- Soil, water, and forestry management and conservation (economic and institutional benefits)
- Fundamental mission-oriented research
- Plant and animal efficiency
- Rapid information delivery systems for decisionmaking
- Farm income (include marketing and other aspects)
- Family resource management
- Human expertise development

e. Discussion of General Criteria to Be Used in Budget Reduction

- Robert Buckman suggested that the following guidelines be mentioned in the priorities report as criteria to be applied in times of budget reductions:
  - (1) Degree of adherence to national, State, and local objectives.
  - (2) Timeliness of research--can it be postponed? Is it near completion?
  - (3) Quality of program/probability of success
  - (4) Adequacy of resources (people, funds, facilities).
- R. J. Hildreth submitted additional criteria for budget cuts:
  - (1) Cuts can be made which do not impair the human physical capacity of the S&E system to respond to changes in biological, social, and political environment, and to meet emergencies.

- (2) Programs where it is clear private industry or other than agriculture S&E agencies will meet the needs of the users.
- (3) Areas or programs: (a) which provide benefits (direct and indirect) to a small group of citizens; (b) where the benefits can be captured for private gain with only small indirect benefits to citizens.

- Comments from members

- (1) Teaching and extension must be tied in.
- (2) Reduction should not impair ability of system to respond.
- (3) Must maintain critical mass.

f. Conclusion

- A draft of the priorities report will be sent to the Council for review, though substantial final review authority will rest with the Executive Committee.

8. Public/Private Sector Roles, Responsibilities, Potential for Coordination in Agricultural Research and Education

A. Introduction - Anson Bertrand

- There has recently been growing pressure to reexamine public/private sector linkages with respect to agricultural research.
- The current Administration feels that many activities performed by the public sector are more appropriate for the private sector.
- Proposed policies have the potential to cause significant changes in the food and agriculture science and education system.
- Through this panel presentation and subsequent Council discussion, it is hoped that a Joint Council position on the subject can be reached.

B. Definition of "Agricultural Industry" - Harold Wilcke, Ralston Purina

- It is first necessary to define what is meant by "agricultural industry."
- Wilcke submitted the following definition: "Components which are concerned, directly or indirectly, with the production, processing, preservation, marketing, and utilization of food and fiber."

- The term "agricultural industry" can include many things: a) farm operators, b) research interests, c) supporting private sector industries-(chemical and pharmaceutical companies, farm machinery, feed industry, etc.).
- When speaking of transferring activities to "industry," policymakers must be specific. "Industry" is an aggregate term used loosely in the current environment.

C. Private Sector Perspective - Jack Marvel, Monsanto

- Marvel raised issue with the popular philosophy that "the Federal Government should invest in research and development where benefits accrue to the general population, and the private sector should undertake R&D activities where benefits accrue to the private sector." There are few cases where success occurs in any endeavor in the private or public sector, unless everyone benefits. The public and private objective should be the same--to help the farmer provide the Nation with its needs.
- The Federal Government must substantially increase funding in basic agricultural research, but it should not be at the expense of cooperative extension work, which has had a large part in building the agriculture of this country.
- Separating State and Federal programs would also be a mistake.
- In the climate of shrinking budgets, the timing is probably inappropriate, but in any private industry people share the opinion that agriculture should be given a very high priority now--it carries the responsibility of protecting and enhancing the most important U.S. natural resource and the most important economic strength.
- Marvel responded to a series of questions posed to panelists prior to the session:
  - Q. What criteria should be used to decide appropriate research for the private/public sector? Who should establish criteria?
  - A. Common sense is the main criteria. Perhaps the Joint Council or a highly qualified review board should establish the criteria.
  - Q. How should the decision to "hand off" research from the public sector lab to a private firm take place?



- A. It should take place naturally. Some duplicity will do no harm--scientific progress is not made by one person's right way.
- Q. Is there a role for joint public/private ventures?
- A. There are and have been many, e.g., extension programs serving as a neutral advisor to farmers on pesticides.
- Q. Does the dearth of information about private R&D activities in the private sector pose a problem, cause duplication?
- A. There is little duplication that is non-productive. Surely the private sector cannot fund the level of research and training needed. It is difficult to collect information about research activities in the private sector.
- Q. What generalizations can one make about R&D activities we can expect the private sector to undertake?
- A. Those activities with the biggest economic targets in their particular sector (which fit the benefit test).
- Q. Is additional data about private and public sector roles needed?
- A. Possibly. Perhaps the Joint Council or a similar group with public/private composition could look into it if the time is warranted.
- Q. Is there a common understanding of the term "private sector"?
- A. The division of public/private could become absurd. Ultimately, farmers could be considered the "private sector" and the government could no longer work with them.
- Q. Are existing coordinating mechanisms which deal with these problems adequate?
- A. Perhaps some of the mechanisms are not as good as we would like to see them, but groups in existence (ARI, IRI) could act as catalysts.
- Public programs must place a priority on the protection of our land and water resources, the plant variety issue, and insect control.
  - Education programs must be enhanced so that agricultural graduates have increased computer skills and expertise in the various sciences.



D. The Public Research Perspective - Terry Kinney, Administrator,  
Agricultural Research Service

- Kinney commented on Public Law 94-282 which establishes policy, goals and priorities for research supported by Federal funds. As an agency of the Executive Branch, ARS is charged with implementing the intent of Congress--including the intent as expressed in Public Law 94-282. Notably and appropriately missing from this legislation is any citation of the type of research that should be conducted by universities or industries.
- Section 102(A)(5) includes the following statement of principle: "The development and maintenance of a solid base for science and technology in the United States, including: (a) strong participation of and cooperative relationships with State and local governments and the private sector; (b) the maintenance and strengthening of diversified scientific and technological capabilities in government, industry, and the universities, and the encouragement of independent initiatives based on such capabilities, together with elimination of needless barriers to scientific and technological innovation; (c) effective management and dissemination of scientific and technological information;..."
- Sections 102(B)(1) through (4) describe how the policies enunciated in 101(A) are to be implemented by Federal action. Paragraph (2) speaks of the need to couple institutional research with commercial applications and (3) makes appropriate the Federal conduct of research beneficial to the public but "which the private sector may be unwilling or unable to support." Paragraph (4) discusses the distinction of research that may properly be supported exclusively by the Federal Government as opposed to research that should be shared with State and local governments and the private sector.
- When a continuing profit and a long-term market is assured, we can expect industry to pick up R&D activities. However, we cannot generalize to the point that Ruttan did in his recent paper in Science in which he said, "It is concluded that the public sector should continue to give mechanization a low priority." Decisions must be made on a project-by-project basis. Generalizations are dangerous.
- There is little, if in fact, any ARS research effort that the private sector should be responsible for. A recent categorization of ARS research programs points to only about 5 percent of our research that is "suspect" in terms of being research that the private sector should conduct.
- If we have a small amount of research that we suspect industry should do, can we afford to drop it and gamble that industry will

pick it up and carry it into the development stage? I think we should not gamble too much with research, the activity that has contributed most importantly to the status of our country in agricultural production technology.

- The criteria that should be considered to decide what research is appropriate for the private sector should include:
  - Economic benefits assessment--both industry and public benefits
  - An assessment of public health and safety benefits
  - Whether industry has research ongoing and the size of the industry
  - The potential for exclusive licensing or patents
  - What remains to be done research-wise--(perhaps we are ready to put the technology on the shelf?)
- Criteria should be established by the research organization conducting the research in consultation with industry representatives when possible. The ultimate decisions regarding the research should be made by the research organization.
- The transfer of research from the public sector to the private sector should be made by research managers in the performing organization. The decisions should be based on review and interface with industry and there should be a transition period. This is the way it is handled in ARS now with good success and I see no basis for changing the process.
- There should be joint ventures between the public and private sectors whenever possible if it will speed up delivery of technology or a product. We have numerous examples of joint ventures now. Evaluation of chemicals is a good example; the joint development of the vaccine for FMD is another. When the joint venture progresses to the point where industry can or should handle it, ARS should back out--and we do.
- There is not much research and research information in the private sector that we in ARS or other research groups are unaware of. It is an insult to the intelligence and perceptiveness of ARS scientists and research managers to imply that there is some research activity going on in the dark recesses of industry that we are unaware of. There is also a small but relatively constant flow of scientists between ARS and various industries.

- Insofar as coordination of activities and conflict resolution may be necessary, I feel that there are numerous mechanisms for accomplishing these tasks. ARI, IRI, UAB, JC, industry representatives or committees and numerous other groups interacting with the Federal research organizations should continue to address these concerns. For a number of years researchers and research managers in ARS have met each year with literally hundreds of industry representatives for the specific purpose of planning and priority setting.
- Motivation for industry to take over R&D activity depends on many things. Evidence gathered in economic studies indicates that a significant positive relationship exists between the amount of innovative activity in an economy and economic growth and productivity.
- Also it is not enough for the inventor to invent; his new idea must appear in the market as a new process or product. Ninety percent of the investment necessary to bringing an innovation successfully to market comes after the invention process is complete.
- Most available evidence indicates that decline in productivity growth rates result from tax disincentives for private research and development; short supply of venture capital; foreign competition; overzealous regulatory activity and other non-research related factors.
- There has been a long enduring relationship between industry and ARS that has been profitable to industry and beneficial to society. ARS has always perceived its programs to be noncompetitive with industry programs--we have no different view now.
- There is general agreement that basic knowledge is insufficient for generation of the new technology that will be needed to keep agribusiness healthy and growing in the coming decades. ARS will continue to strengthen fundamental research but with a balance of research in applied R&D when justified.
- ARS will continue to emphasize research in areas that are expected to lead to new technology for production, processing, etc. Less emphasis will be placed on process improvement or fine tuning production techniques.
- The validity of the concept of pursuing government patents is under review. A different approach may be needed to prevent conflicts and promote industry involvement.
- We have an excellent system. It is dynamic and continues to respond to changing needs. For example, from 1970 to 1979 the



number of ARS scientist years increased less than 2 percent, yet scientist years in processing and marketing food and non-food products decreased by 38 percent and emphasis increased on basic research, pest control and human nutrition. These changes were generally in response to policies of the executive and legislative bodies.

- I believe the role of the Joint Council on this issue should be one of recommending new policy or changes in policy. Also, when considering the congressional directives and requests made in Public Law 94-282 and the meager funds authorized for OSTP operations in this area, it becomes obvious that the agricultural, science, and education community including the Joint Council should be prepared to gather data that the OSTP will need for their deliberations and to meet the mandates of Congress.

9. Discussion - (J. P. Jordan, Lead Discussant)

- The major driving force behind the public/private sector issue is budget reduction.
- This has resulted in attempts to compartmentalize "basic" or "applied" research looking at the full spectrum of research activity and/or benefits.
- A Joint Council statement on this subject should include the following concepts:
  - a. Description of the continuum of research activity in the food and agriculture science and education system and where the grey or "judgment" areas lie.
  - b. Emphasis on the importance of investment in agricultural research to improve production on existing land. We must invest now for payoff 10 years hence.
  - c. Explanation of how the food and agriculture science and education system works at low cost, with effective interaction and little duplication between Federal/State/private partners; discussion of regional planning systems.
  - d. Explanation of the lack of clear cut distinction between public/private sector roles; definition of "agriculture industry" and of how the transition from public to private sector takes place.
  - e. Description of communication systems in place (vertical and horizontal) and their effectiveness. State that continued and

improved communication is the goal--perhaps Congress, OMB, and the State legislators need to be more involved in the process.

- f. The feeling that criteria for change must be jointly determined by the public and private sector.
  - (1) The public sector cannot decide what industry will do without involving industry.
  - (2) If public sector "suspect" projects are identified, public and private representatives, as well as OMB representatives will need to review on a case-by-case basis whether industry can pick up the activity.
- g. Emphasize long-range planning, particularly for expertise development--development of trained expertise for the public and private sector should be a high priority.
- h. Cite that the bulk of R&D work done by private industry is non basic. Probably 10 percent of private R&D activities could be classified as "basic" research.
- i. Point out that tax incentives for additional private basic research activity are minimal under the 1981 Economic Recovery Act.
- j. Include opinions of panel, i.e., that industry will be involved when profit incentive is there and will pursue projects with highest potential for economic gain.
- k. Address the Secretary as the major audience for this issue and emphasize the role of his office in keeping a balanced program.

#### 10. Luncheon

- Robert Clodius, President, National Association of State Universities and Land-Grant Colleges, addressed the luncheon session of the Council. His remarks may be found in Attachment #1 to this document.

#### 11. Needs Assessment/Strategic Plan Process

- Keith Shea updated the Council on progress to date regarding the needs assessment and other Title XIV-mandated Joint Council reports.
- The implementation committee for these reports has been meeting regularly prior to the last Council meeting.
- Committee members include: Robert Buckman, Deputy Chief for Research, Forest Service, USDA; Mark Buchanan, Director-at-Large, Western



Association of Agricultural Experiment Stations; Craig Oliver, Maryland Extension Director; and Allan Goecker, Assistant Director for Higher Education, Science and Education, USDA.

- A dedicated staff for this effort has not been approved, slowing efforts somewhat.
- The seminar that follows is intended to set the stage for the needs assessment/planning process.

12. Resource Base for Food, Fiber, Forestry: Outlook for the 21st Century

A. U.S. Agricultural Land: Quality and Quantity for the Future - Pierre Crosson, Resources for the Future

- Crosson cited an increase in harvested cropland since the early 1970's, with acres of harvested cropland in 1981 being the highest in history.
- The dominant force behind these trends was an increase in exports. This coincided with a slower growth of yields (not that yields have declined, but that the rate of increase has slowed).
- Slower growth of yields resulted from increase in fertilizer prices, inferior land being brought into production, and weather factors. Increase in erosion is also plausible.
- The future will likely hold growth of demand for exports (especially grain and soybeans), but the growth rate will probably be somewhat more moderate than in the 1970's (due to slower growth in population of developing countries; slower growth in world income).
- Slower growth in yields will likely continue due to (a) rising prices of fertilizer and increased costs of irrigation; (b) the percentage of farmers now fertilizing at optimum rates is high; (c) absence of any major break-throughs in new yield-increasing technologies. The increases in production due to exports will continue to outpace the rate of increasing yields.
- Demand for supply of land to produce crops is likely to grow by 60-70 million acres. Demand for non-agricultural uses is expected to grow 20-25 million acres.
- Where will additional land come from? The present base is fully utilized. Forest, pasture, and rangelands are potential cropland sources.
- Interaction of demand and supply implies that real costs of agricultural land will rise. Rising costs of irrigation and

fertilizer combined with relatively slow growth in productivity-related technology, suggest rising real costs of agricultural production.

- Salinity with irrigation is a problem in some parts of the arid West but is of secondary importance in the national perspective.
- The projected increase in cropland implies an 80-85 percent increase in erosion from 1977-2010.
- There is little data about productivity losses from erosion, but ongoing studies may yield useful results.
- Increasing pressure on land resources indicates rising real economic and environmental costs of agricultural production.
- We should respond by investing more in research: (1) to develop new technologies which give higher yields by substituting less expensive yield-increasing inputs for more expensive ones, (2) to extend the limits of conservation tillage, (3) increase research on productivity and off-farm costs of erosion and we should also respond by targeting soil conservation efforts more precisely.
- We should not respond by (1) slowing growth of exports, (2) slowing conversion of agricultural land (will not be cost-effective--most pressure on the land base is from agriculture), (3) subsidizing gasohol (promotes more demand for grain).

#### Questions

- Q. How much of the needed research do you feel will be supported by private industry or farmers?
- A. Very little. Resources required are great and returns from this type of research are widely diffused and long delayed.
- Q. Is conversion of farmland to non-agricultural uses no longer a problem?
- A. SCS figures show that 675,000 acres of cropland and 200,000 acres of potential cropland per year were converted between 1967-75. National agricultural lands studies show that rate of conversion will be less over the the next several decades. Even if slowing the conversion process were enormously successful (i.e., 10 million acres saved), it would make only a small contribution to meeting the increased demand for cropland and the program would cost a great deal.

Q. Are you saying that if crop production costs in the U.S. rise above costs of production in other parts of the world, it could be catastrophic for U.S. agriculture?

A. Despite increase in production costs, some of the main forces causing it (fertilizers, etc.) will be at work in other countries as well. World trade uncertainties also make this a guessing game!

13. Global Assessment of Agricultural Land - Ralph J. McCracken, Soil Conservation Service

A summary of Dr. McCracken's comments follows (complete text available):

A. Global supply of arable land

- (1) The total global supply of potentially arable land is estimated to be about 3.2 billion hectares. Approximately 1.4 billion hectares are currently being cultivated.
- (2) The world is estimated to be presently losing 4 million hectares of productive land annually due to degradation and 8 million hectares per year due to urbanization.
- (3) Global reserves of land suited for agricultural production will be consumed in less than 100 years. If land losses continued at the present estimated rate of 12 million hectares annually, in 100 years the total arable land may be 2 billion hectares, only 0.6 billion more than the land presently being cultivated.
- (4) More than half of the 1.8 billion hectares of potentially arable land not now cultivated is in intertropical regions--chiefly in South America and Africa. The soils present there are predominantly Ultisols, Alfisols, and Vertisols, rather than the highly weathered, relatively infertile Oxisols which some previous analyses have suggested to be predominant there.
- (5) About 15 percent of the world agricultural land is now irrigated with a potential to increase this at least 250 million hectares.

B. Soil quality and productivity

- (1) Land degradation with a resulting decline of productivity is increasing throughout the world. Soil erosion, salinization, waterlogging, and degradation due to overgrazing are serious problems. Irretrievable loss of productive land (desertification) is an end result of severe land degradation.



- (2) Arable soils (both current and potential) respond to applications of technology and many are physically capable of greatly increased production. (One prominent soil scientist estimates that 10 times as much food can be produced as is now being done, based solely on the physical and biological properties of the soils and the climates in which they are located.)
- (3) The quality and quantity of physical land resources are not the major limiting factors for increasing productivity; however, they will become more important as land pressures increase.

C. Concerns about assessing and understanding global soil resources

- (1) Soil deterioration and associated productivity loss are serious. Mismanagement of farming and irrigation systems and of grazing are leading to increased soil deterioration in many parts of the world.
- (2) Loss of productive land is accelerating, thereby decreasing the global soil supply.
- (3) Insufficient information on the quantity and quality of land and the changes in these often seriously limit attempts to make meaningful global assessments today. Completion of soil resource inventories and continuing monitoring activities utilizing modern technology are urgently needed.
- (4) Development, transfer, and application of appropriate technology to slow down soil degradation and increase productivity are urgently needed.
- (5) Assumptions about the world's ability to use moderate and high levels of technology in agricultural production are not well reflected in the current status of global food and fiber production. Global and regional socioeconomic factors appear to be more serious constraints than our physical soil resources if they are used widely.

Questions

- Q. Is growth of true deserts a problem?
- A. Yes, they are actually increasing in size. Also, productivity in desert countries is dropping significantly.
- Q. Is India's potential for irrigation based on surface or ground water or ground water reserves?
- A. Largely ground water in shallow supplies.

Q. Can we infer a probability of a food shortage in the next 20 years?

A. If we do not slow down rates of the land degradation process, if we do not have adequate technology transfer, and if the rate of additional investment in research and extension is not adequate to increase productivity, we are in serious trouble.

Q. Do land holding patterns have any impact?

A. Land holding patterns alone are not a problem, but certain land rights, transfer and price policies may cause institutional incentive problems.

Q. What would be the environmental problems caused by moving a lot of land into production (i.e., CO<sub>2</sub>, reforestation)?

A. This would be a concern, for example, in the Amazon basin where a good deal of reserve is located. With careful planning, however, harmful effects could be minimized.

Q. Isn't it difficult to make inferences about such a variable phenomena?

A. Yes, we should be looking at two types of tolerable soil loss values--"on site" in some areas where a great degree of erosion will not affect productivity, and "off-site" damages, i.e., sediment predictions.

14. World Food, Fiber, Forestry Needs: Current World Supply and Demand Situation/Prospects for the 21st Century - Kelley White, Economics Research Service

- The performance of world agriculture since 1950 has been phenomenal. During the last 30 years, aggregate agricultural production grew at an annual rate of 2.5 percent. Gains in agricultural production were broadly distributed around the world and in almost every major grouping of countries, including the less developed countries with very high rates of population growth. Production increases were sufficient to result in increasing per capita agricultural production.
- However, while production growth rates for the total 30-year period were impressive, in most countries of the world the rate of increase in agricultural production has been declining since the 1960's. Also, even in areas of the world in which agricultural production continues to grow more rapidly than population, total effective demand for agricultural commodities grew more rapidly than did domestic production. This has resulted in a rapid increase in world agricultural trade, a rapid decline in the number of countries that



are net food exporters and a rapidly growing dependence on the United States and a few other surplus food-producing countries to meet growing food demand.

- Demand for food is basically determined by two factors--population and income. Population growth has two types of effect on demand for food: (a) as a result of an increase in population, there is a corresponding change in the total quantity of food needed to meet nutritional needs of the population; (b) nutritional requirements are affected by changing age structure and per capita income.
- For the remainder of this century and well into the next century, absolute growth in the world's population will be an important factor contributing to increased demand for food. Even at projected reduced rates of population growth, the absolute number of people being added to the world's population will remain large. Not until the year 2020 would these projected growth rates result in the absolute number of new people falling back to the 1981 increment of 75 million.
- According to macroeconomic forecasters, economic growth in the future will be slower than the unprecedented explosion in GNP experienced since 1950. Also, the pattern of economic growth will vary considerably among countries.
- In the developed countries, economic growth is expected to slow as the most advanced countries enter the post-industrial stage of development, as growth in labor force and capital productivity slow, and as supplies of key natural resource-based inputs tighten and costs increase. Though income growth rates will be slower, they will be sufficiently high to result in increase per capita income levels and will continue to provide stimulus for food demand into the 21st century.
- The more affluent centrally planned countries are expected to face similar prospects of reduced rates of economic growth. While per capita income levels will be high relative to the developing countries of the world, per capita income will lag somewhat behind the developed market economies. Income growth will contribute to increased food demand further into the 21st century in the centrally planned economies.
- Income growth rates are expected to be somewhat higher in the developing countries than in the more mature developed economies. Growth rates will be from a lower base and should reflect continuing payoff to relatively heavy investment in infrastructure that has been made in many of these countries during the post-war period. Strongest growth rates are expected among the 15 to 20 countries with important reserves of petroleum and minerals which will be demanding increasing real prices.

- Growth prospects for the remaining less developed countries are less optimistic. The weaker income growth expected in these low income developing countries reflects a poor natural resource base, limited investment in human capital and infrastructure in the past, and institutional constraints which will retard their economic development. Income elasticity of demand for food will remain high in this group of countries and a significant proportion of any increase in per capita income will be devoted to food.
- The combined effects of projected income growth and population growth imply that aggregate foreign demand for food is likely to increase at an annual rate of 2.5 to 2.65 percent between 1980 and the end of the century. These same factor projections imply an annual rate of growth in foreign food demand of 1.1 to 1.85 percent during the first half of the 21st century.
- Agricultural production can be increased in one of two ways: The area of land under cultivation can be increased, and/or the productivity of the land area under cultivation can be increased.
- Many countries appear to be facing or nearing absolute land constraints. Countries possessing reserves of reasonably fertile land are likely to deplete these reserves by the end of this century. It is probable that expansion of land area will involve utilization of less fertile and more fragile lands or land that will require significant capital investment to bring it into production or into a higher level of intensity of use.
- Developed exporting countries, Latin America and Sub-Saharan Africa, would appear to be the regions with the greatest potential to further expand agricultural production by bringing additional land area under cultivation. Developed importing countries, the Soviet Union, and the People's Republic of China, will be facing declining supplies of available land area for agricultural production before the end of the current century.
- The outlook for productivity growth beyond the end of the current century is uncertain. Due to the long lag between scientific discovery and adoption of new technology, productivity gains during the remainder of this century will be dependent upon existing scientific knowledge. Further productivity gains in the first quarter of the next century will be dependent upon investment in research made during the eighties. There is a significant stock of scientific knowledge and production technology which has not yet been fully applied. This technology may not be appropriate for the less developed countries of the world with increasing energy costs. Thus, it is not clear that we can expect future productivity increases to exceed or even equal those of the past 30 years.

- Projections indicate that growth in foreign production is likely to slow from the annual rate of 2.5 percent during the post World War II period to a rate of 2.15 to 2.35 percent per year during the remainder of this century. They further imply a projected rate of growth in foreign supply of 1.1 to 1.55 percent per year during the first half of the 21st century.
- U.S. domestic demand for agricultural commodities is expected to grow at a rate significantly lower than has been experienced during the past 30 years. The slower population growth projected and levels of per capita demand for food which will approach the saturation level imply a domestic food demand growth rate of less than half the rate of the last two decades or approximately .7 to .5 percent per year through the remainder of this century. Demand growth beyond the year 2000 is likely to slow even further to .1 to .3 percent per year.
- These projections of foreign supply and demand reveal a projected gap which, if translated into demand for U.S. farm products, would imply a rate of growth in foreign demand slightly lower than the average growth rate during the 1950-80 period and significantly lower than during the seventies. When combined with projected domestic demand, the implied total demand for U.S. farm products would increase by 3.45 percent annually during the rest of this century and decline significantly thereafter. While foreign demand is projected to grow less rapidly than in the past, the impact on total demand for U.S. products is greater because the export base is as much larger in absolute terms and relative to domestic demand.
- The foreign demand growth rates implicit in the projections which have been discussed earlier should probably be taken as an upper bound on the probable level of foreign demand growth. In addition to the uncertainties associated with projections of population, income, and supply factor growth underlying these foreign consumption and production estimates is the recognition that still other factors influence the amount of food gap existing in a given country which will be effectively translated into demand for imports. Governments impose policies which restrict the conversion of domestic demand into import demand and availability of foreign exchange often limits the ability to convert domestic demand into import demand. If past foreign growth in production consumption and trade are used to define a lower bound, growth in total U.S. export demand could be as low as 2.4 to 3.2 percent during the remainder of this century and as low as 1.1 to 2.6 percent during the first half of the next century.
- In summary, either the high demand or low demand scenario implies rates of growth in total demand for U.S. farm products which exceed the rate of growth in agricultural production experienced by the U.S. during the post World War II period.



- The ability of the U.S. agricultural sector to respond to these projected levels of foreign demand has important implications for U.S. consumers, producers, agri-industry, and our land and water resource base. If the U.S. supply response proves to be relatively inelastic, real prices of agricultural commodities will rise sharply. Sharply rising world prices will reduce foreign demand for U.S. goods in two ways. First, for given levels of foreign population and income, smaller quantities will be demanded. Secondly, higher prices will stimulate higher levels of foreign production. Both will reduce the quantity of U.S. farm products demanded.

### Questions

- Q. Will productivity increases be sufficient to match projected increasing demands for U.S. agricultural products?
- A. Total annual increase in U.S. demand is 2.5-3.5 percent; recent growth rates in U.S. agricultural production have been less than 2 percent over a 30-year period. Strains on the resource base are anticipated. Significant investments in research and education will be necessary to match demand.
- Q. We have great surpluses of corn, wheat, soybeans and cotton. Will increased productivity be needed in these areas?
- A. Productivity growth rates are calculated over a long time. We may see more variability annually re yields, etc. We are much more likely to have a tightened supply situation in the long run, not a surplus situation.
- Q. Congressman and State legislators will ask when we will have a shortage of supply.
- A. Probably no one is completely sure. We don't have to look far in the past to recall pressure on agricultural supply and attractive commodity prices. It would take only one crop failure in a major world population center to make the glut look insufficient. We still have a strong foreign demand.
- Q. Would you be a buyer or seller of U.S. farmland under this scenario?
- A. I'd be a buyer if I could afford it in the short term.

### 15. Summary and Implications - Kenneth R. Farrell, Resources for the Future

- Farrell stated that an uncertainty persists about the resource base for food, fiber and forestry, the production potential of those resources in the U.S. and abroad; about social, economic and

technological variables that will govern the use of those resources. Yet, we need informed judgment in order to formulate plans and policies for the future. We must, therefore, analyze the most important variables over which we have control.

- In the assessment, we must analyze the best possible research so that our judgments about the future will be at least incrementally improved.
- Several areas of general consensus emerge from the previous three speakers: (a) There is likely to be increased pressure on the land base and on water resources. This will manifest itself in rising economic and possibly environmental costs. (b) The major source of growing pressure will emanate from foreign trade. (c) Production-enhancing and resource-saving technologies and therefore, research and development, are critical to increasing output domestically and abroad.
- Also, some areas of inconsistencies emerge: (a) Differences in assumed rate of growth of demand from abroad and therefore, a different estimate of pressure on the resource base. (b) Projections are based on constant real prices--we actually know little about supply elasticity.
- Areas of information and analysis gaps include: (a) Data about quality and quantity of land is scanty. (b) There is uncertainty regarding the relationship between productivity and erosion. (c) Knowledge of environmental effects of intensive use of our resources is limited. (d) There is a question about agriculture's ability to use high technology and the environmental effects it would pose. (e) If prices change, we don't know how much land would be brought into production, and at what cost.
- Thoughts regarding the needs assessment include the following: (a) This seminar has been a good beginning, but has only looked at one area. (b) Little has been said about our institutions and their ability to develop and transmit knowledge and technology. Training of expertise and management will be critical variables. (c) Government policies will also be critical variables. Will they remove, or create obstacles to agricultural development?

#### 16. Science and Education Policy Issues: Joint Council Recommendations

In preparation for its June 30 priorities report, the Council discussed and revised several science and education policy issue papers. Following are Council-suggested revisions of each paper. Papers are listed in order of issue priority, as ranked by the Council.



A. Issue: Role of Assistant Secretary for Science and Education in Coordinating Research and Education

Discussion Leader: James Anderson

Major Concepts: The Assistant Secretary is charged under Title XIV to establish USDA as lead agency in the Federal government for the food and agricultural sciences and to improve planning, coordination, and priority setting in agricultural research, extension and teaching. The Assistant Secretary must function in several arenas of activity while responding to this legislation. These arenas include the (1) State/Federal partnership; (2) USDA science and education agencies, i.e., ARS, CSRS, ES, NAL; (3) other USDA research and education agencies and action agencies, e.g., FS, ERS, SCS, OICD, APHIS, etc.; and (4) non-USDA research and education agencies, e.g., NSF, HHS, DOD, USDI, etc. The Assistant Secretary must also play a role of coordination and interaction with private industry, although this role is not as well defined or formal.

Suggested Revisions/Comments

Revisions:

- Cite Assistant Secretary as major chief policy official for the four science and education agencies (ARS, CSRS, ES, NAL) to assure full cooperation and coordination in the administration of policy.
- Add policy role of Assistant Secretary with Congress, OMB, and industry.
- Cite involvement in international activities (i.e., coordination with OICD; liaison to Board of International Food and Agricultural Development).

Comment:

- Primary coordination with Federal non-USDA agricultural science and education agencies may have to be done through the Joint Council and the new Assistant Secretary. The FCCSET Committee on Food and Renewable Resources has not been effective in this regard.

Recommended Action:

- Include this policy issue in the June 30 priorities report, submit to the new Assistant Secretary, produce as a concise Joint Council issue paper.
- Members should review all issue papers further and submit additional recommendations to staff.

B. Issue: Conducting Strategic Planning in a Pluralistic, Decentralized System

Discussion Leader: R. J. Hildreth

Major Concepts:

- The U.S. agricultural research and education system has been extremely successful, but it stands to be threatened by perceptions of the political system that programs are poorly organized, planned, and conducted. Future success depends on reestablishing credibility in the political arena.
- The Council's composition and legislative mandate put it in a good position to assist the research and education system in "getting its act together." The needs assessment is a good start.

Suggested Revisions:

- Briefly cite Title XIV legislation which authorizes Joint Council-mandated reports.
- Reference centrally controlled agricultural systems that have been less successful.
- Place primary emphasis on the role of the Joint Council in the system and how it should orchestrate the input of its regional councils, national committees, ECOP, ESCOP, RICOP, etc., toward long-range strategic planning.
- Make statement as brief as possible.
- Insert Title XIV (1981), section 1409-A in the text.
- Change defensive statements to positive assertion of Council's intention to proceed with its mandated strategic planning responsibilities.

Recommended Action:

- Include issue in June 30 priorities report.

C. Issue: Implications of Agricultural Research Service Shift toward Basic Research

Discussion Leader: J. P. Jordan

Major Concepts: Recent policy statements by the Office of Science and Technology Policy and Office of Management and Budget pressure ARS to shift emphasis to basic research. If shifts are only minor, impact will be minor. Major shifts would cause significant impact on other research and extension programs.

Suggested Revisions:

- J. P. Jordan suggested including the following statement:

The Joint Council lauds the Administration support for basic or fundamental research recognizing that it is critical for both for the USDA laboratories and for the cooperating colleges and universities. History shows that making advances in applied research requires a solid foundation of fundamental research. Specific identification of this thrust for USDA laboratories is appropriate recognizing that at the same time universities are built to conduct fundamental research. Indeed, the next generation of scientists who are trained at our colleges and universities must be well grounded in fundamentals.

- It is important that a balance of basic and applied programs in the total agricultural research system be maintained - tampering with one segment (in either the State or Federal establishments) impacts upon the whole system.
- Discuss impacts of these policies on ARS, as well as State programs (particularly need for ARS to be able to show demonstrable contributions to Congress, agricultural commodity groups, etc.).
- Clarify that redirections to basic research cannot be accomplished rapidly.
- Include definitions and examples of fundamental, basic, applied research.
- Address the need for training scientists. If States do only applied research, who will train basic researchers?

- Include concerns of State Extension specialists for an adequate supply of applied research.
- Emphasize the importance of the role of the Secretary in these decisions.
- Stress that, if taken to the ultimate, policies now being emphasized could result in ARS having a totally basic program funded by competitive grants. Current emphasis on contracting out of government functions could divert resources totally from in-house Federal agricultural research programs. Stress the importance of a Federal research function.

#### Recommended Action

- Include issue in June 30 priorities report, revise to be succinct, specific and positive.

#### D. Issue: Human Expertise Development

Discussion Leader: George Sledge

Major Concepts: It is critical that we maintain an adequate supply of individuals with expertise in the food and agricultural sciences for both public and private agencies and institutions engaged in agricultural research and education. Serious expertise shortages currently exist and are projected to increase throughout the eighties. Issue paper summarizes factors causing these shortages and makes recommendations to the Secretary for strengthening USDA's role in higher education in the food and agricultural sciences.

#### Suggested Revisions/Comments

- Recommendations made in the issue paper will eventually need to be further refined (i.e., the recommendation for development of a national education policy in the food and agricultural sciences).
- Joint Council should strongly endorse human expertise development as one of the most significant factors that pervades all that is done.
- Statement should recommend that the Secretary and the new Assistant Secretary proceed with haste to undertake responsibilities in higher education which are assigned to USDA in the 1981 Farm Bill.
- Add need for expertise in the international area.



- State that human expertise development is an important output of research.
- State that this is a critical area in the national interest.
- Strengthen the recommendation to "encourage funding under authority of Title XIV." Take a stronger position, urging the Secretary to give "top priority" to funding. If Congress intended a stronger role for higher education, funds should be allocated.
- Motion made and seconded:

Recognizing the specific and unique requirements for the development of human expertise in the food and agricultural sciences, it is moved that three special committees be appointed, namely,

- (1) Committee on Undergraduate Training
- (2) Committee on Extension Continuing Education
- (3) Committee on Graduate Training for Masters and Doctoral Degrees and Post Doctoral Studies

It is further moved that these committees be charged to study and report on the adequacy of the prospective upcoming supply of young graduates in agriculture, the needs for continued education among the staff of Extension Services of the various States, and the needs for training future scientists that will be required to serve the American public in the production of food and fiber to satisfactorily meet our domestic and export requirements. The committees are to be further charged with the responsibility of developing specific program recommendations for meeting these needs and submitting same to the Council's Executive Committee for review, appraisal and referral to the full Council for its consideration.

- Substitute motion made that the standing committee on higher education be charged to attend to the challenges stated in the previous motion. Motion approved.
- The National Extension Committee may also be interested in this matter.

Recommended Action:

- Include issue in priorities report.

E. Issue: Role of Food and Agriculture Science and Education in  
International Science and Technology

Discussion Leader: A. R. Baldwin

Major Concepts:

- There are two types of international programs defined on the basis of their objectives: a) Reactive, where the U.S. is responsive to others' needs as perceived and requested by agencies such as AID, the World Bank, BIFAD, FAO, etc.; b) Proactive, where the needs of U.S. agriculture drive the program.
- Presently at least eight organizations are involved in coordination of international research. All interact with USDA's research, teaching, and extension personnel.
- Most of our international research, extension and teaching work is in support of others. Essentially very little is in support of U.S. agricultural needs.
- The paper makes the following recommendations:
  - (1) The Joint Council should take a look at how we decide what kind of international agricultural research we currently support.
  - (2) Determine U.S. needs related to international agricultural research, e.g., inventory of our needs for information, scientific development, germplasm.
  - (3) Determine who has and where are the agriculture research developments important to meeting U.S. agriculture needs.
  - (4) Develop a coordinating and supportive strategy to interact actively between 2 and 3.
  - (5) Recommend a strategy for U.S. agriculture education of foreign students.
- If U.S. agricultural needs drive the international research program, most everyone will be behind it. If someone else's needs drive it, then it will be subservient to other priorities

(realizing, of course, the accompanying political and budgetary complications).

Discussion:

- Joan Wallace, Administrator, Office of International Cooperation and Development (OICD), updated the Council on various coordinating activities of OICD and emphasized that OICD wishes to be represented on the Joint Council.
- Mary Nell Greenwood pointed to the need for a strong Extension component in international programming.
- Terry Kinney described various international ARS programs and supported the view that international programs should support domestic agricultural programs. Dollars to support international research which are under USDA control are limited (approximately \$5 million).
- The importance of training international students should be recognized—how can we more effectively select superior students for U.S. training that will eventually end up in international policymaking roles?
- The paper emanated from the concern that the science and education community was not addressing the issue of what it wants to do overseas, i.e., getting the science and education "house in order" to respond in a meaningful way that corresponds with the domestic program. U.S. science and education needs should drive our overseas programs. Although other aid and trade benefits may drive international programs, science and education is the main arena of the Joint Council. Perhaps it could assist with this type of coordination.

Recommended action:

- The issue paper contains a mixture of recommendations for the Secretary of Agriculture, and recommendations for Joint Council activities. The former should be stressed in the priorities report; the latter can be taken up by the Council in the future (recommended as a topic of discussion for the June meeting of the Executive Committee).
- In the priorities report, the Council should point to the interface between domestic and international programs and inform the Secretary of the important opportunities that this type of activity represents.



F. Issue: State/Federal Partnership

Discussion Leader: James Anderson

Major Concepts: The success of the agricultural enterprise in this Nation has been mainly the result of this partnership. The Federal/ State partnership continues to be very important: (1) planning and coordination among partners will become more important in the midst of limited resources; (2) new technology is needed in agriculture; (3) Federal funds give balance and stability and can help maintain continuity in programs of important national significance that would otherwise have low visibility; (4) the system represents the best of both worlds--the Federal staff can influence input at the Federal executive level and the State staff maintains a close relationship with State legislatures.

Federal agency staff are needed to (1) provide a communication link to the Secretary; (2) assist the Secretary in planning and coordination mandates under Title XIV; (3) supply information as the Secretary and Assistant Secretary respond to Congress; (4) prioritize national needs; (5) provide cohesiveness to the program; (6) assist States in identifying research of national as well as regional and local significance.

Discussion:

- ECOP and ESCOP and CAHA input should be incorporated into this document as the Executive Committee reviews the final draft.
- Add the concept (beginning of paper) that this partnership is one arena where the cost of Federal Government is kept to a minimum by picking up other partners that share in the cost. The Federal partner provides critical leverage for the whole--the whole is greater than the sum of the parts.
- Include the importance of the teaching role.

17. Visit with Secretary of Agriculture John Block

- Secretary Block shared his belief that the Joint Council on Food and Agricultural Sciences plays a very important role, particularly in these times of limited resources. Input on highest priority needs and resource allocation for food and agriculture science and education programs will be needed from the Council.
- The Secretary looks forward to the arrival of the permanent Assistant Secretary for Science and Education and will delegate



# The Joint Council: Part of a Long Historic Partnership

Statement

by

Robert L. Clodius

April 15, 1982

The Joint Council was established by the Food and Agriculture Act of 1977. In one regard, it has a short history. However, the joint history of the land-grant colleges and the Department of Agriculture goes to their inceptions. In 1862, President Lincoln signed enabling legislation for the establishment of the Department of Agriculture and for the land-grant colleges. Thus, the States and the Department of Agriculture as a Federal partner have had a partnership for 120 years. The purpose of each has been the support and the development of agriculture.

Research was not explicitly included in the operations of either in 1862. However, the need for scientific investigations was quickly recognized. Uniquely, the State experiment station concept was initiated in 1872 when Commissioner of Agriculture Watts called a national agriculture convention involving the colleges of agriculture. The convention subsequently appointed an experiment station committee. The fruit of this idea was realized in the Hatch Act of 1887 which provided for State agricultural experiment stations.

The research activity at the Department of Agriculture didn't really begin until an experiment station director--James Wilson--became Secretary of Agriculture in the late 1890s. He began to build several scientific bureaus to focus the attention of the Department on research as well as marketing and regulation. Thus, the impetus of the experiment stations was started by a commissioner of the Department of Agriculture, and the research program for the Department was started by an experiment station director.

In 1914, we took another joint step to provide for the extension of research knowledge and the information of the land-grant colleges to the people not directly involved in formal educational pursuits. Although there were many States that had something like an agriculture extension before 1914, the new extension effort was clearly a State-Federal partnership shepherded to realization by Seaman Knapp.

As with any marriage, there have been strains within our State-Federal partnership over the years. At times, there have been problems among the three functions that we all accept as the trinity of the agriculture support system--research, extension, and teaching. However, these have been healthy growth pains and those of us who have grown up in the system appreciate the performance of the system and are comfortable with the relative complexity of our decentralized but cooperative system.

There is little doubt that the USDA--land-grant partnership has been the basis of American agricultural success in comparison to the rest of the world. We have made two blades of grass grow where one did, and two more for each of those two, and then two more, so we are looking at tenfold increase in yields for many crops since the turn of the century. Today, a single cow is producing as much milk as an average herd did at the turn of the century.

Nonetheless, many questions have been raised about the effectiveness of the agriculture research and education system.

In 1962, Rachel Carson, in her book Silent Spring, suggested not only a failure of the land-grant system, but suggested a conspiracy dedicated to the degradation of our environment. Ten years later, the book, Hard Tomatoes Hard Times, pointed to apparent failures of the land-grant system and the Department of Agriculture in general, in meeting the needs and concerns of society.

The candor of the Pound Report in 1972 gave the impression that agricultural science was pedestrian and following along behind the plow.

These questions were given special importance by the corn blight in 1971 and the world food crisis in 1974. The national economic difficulties we are still enduring added fuel to the debate about structure, organization, funding, and accountability.

There is no doubt agriculture science had become somewhat insulated from our society. Agriculture had drifted into relative obscurity in the 1950s and 1960s--partly because we were too successful. The negative tone of the sudden interest was distressing. Many of us within the system reacted defensively and with disbelief that such comments could be made about our efforts. Yes, we may have a few faults but how could anyone question our great achievements?

What we had missed were the shifts in public concerns and in the national policy process. Agriculture and agricultural science were not issues that many people understood. Our system was different--so different in fact that many new observers were sure it wouldn't work. This was especially important with regard to the rising concerns about accountability, priority setting, coordination, and communications.

Numerous Congressional research units including OTA, GAO and the Library of Congress raised questions about the appropriateness of our Administration, our communications, our determination of priorities, and how well we coordinated our efforts. Several critics suggested legislative "solution". On the other side, the land-grant community sought relief from this libel. We, too, sought a legislative solution.

All of these cross currents came to a confluence in the 1977 Farm Bill. They reside in Title XIV. In response to the concerns about priority setting, coordination, and communication, the Congress established three groups in Title XIV. A Subcommittee on Federal and Renewable Resources with the Council of the National Science and Technology Policy, Organization and Priorities Act of 1976, to ensure that the issues of food and agriculture were heard at the highest policy levels in the Executive branch.



A Users Advisory Board was established at the other extreme to ensure the pressures, concerns, and problems of the users of public agriculture and food research would be communicated to the Federal government. The Joint Council on Food and Agriculture Sciences was established between these two.

Several conflicting concepts were advanced during the legislative process about the composition and orientation of the Joint Council. At one pole, the concept was a bilateral relationship between USDA and the States. In essence, a legislatively mandated ARPAC. The opposite pole called for a Federal food and agriculture council that would bring together Federal agencies and Departments which are involved in food and agriculture with minor representation of the States.

ARPAC was viewed as a success by the State partners, but the negative public perception of agricultural research suggested it had failed to communicate the successes externally. The Federal concept failed to recognize the importance of the State partners in food and agriculture. In the legislative process, the Joint Council ultimately became a compromise of the two extremes. The Federal representation was limited ultimately to the Department of Agriculture and State representation was increased. However, it should be noted that the elimination of "other Federal agencies" was the last adjustment to the Joint Council in 1977. The mandated responsibilities of the Council were developed with an expectation that they would deal with diverse Federal actors as well as the historical partnership. An objective of the Joint Council before the last-minute reduction in Federal membership was to be a scientific referee where "knowledgeable" USDA and State Agricultural representatives could reduce the often counterproductive actions of other Federal agencies. This role became moot with their deletion, yet the words to achieve these objectives remained.

The Congress asks the Joint Council to do many things. You have all read the charges, and I'm sure you've often wondered about some ambiguities which seem to



exist. You may have wondered which of the mandates should be stressed and what the focus of the Joint Council should be. I believe the last minute shift in membership without a similar change in the wording of the responsibilities has contributed to this problem and has prevented the Joint Council from realizing its potential. Specifically, there has been a preoccupation with coordination and excessive effort devoted to contrasting the roles of the historical agriculture research, extension, and teaching partners. Great struggles have occurred about "proper" policy, when the policy and goals of the system are clearly stated in Title XIV and the 50 plus Congressional Acts since 1862. This orientation has resulted in strife between partners and an introspection that I don't believe the Congress intended.

My belief is borne out by the amendments to the Joint Council provisions in the 1981 Farm Bill. First, the law requires that at least one-half of the Council members be appointed from persons engaged in agricultural research, extension, and teaching at the land-grant colleges and experiment stations. The Congress also provided that the appointments shall be from nominations made by the respective State partner groups.

The Congress also directed that existing regional organizations of the cooperative institutions be used whenever possible to reduce unnecessary administrative burdens. Further, the Congress provided for full involvement of the co-chairperson of the Council in the selection of support staff for the Council. Finally, the Joint Council is exempted from the Federal Advisory Committee Act and Title XVIII of P.L. 95-113.

All of these amendments focus on the equal partnership nature of the Council and attempt to minimize unnecessary administrative problems.

The Joint Council has had a difficult and tricky life. While I suggested it has not achieved its full potential, I believe it has assisted our national agriculture research and extension effort by forcing us to surface and discuss important questions and issues.



Ladies and gentlemen, the message that I have today is very simple, USDA and the State cooperators have a history of partnership. Agriculture has benefitted from the complementarities of the partners who make up this magnificent system. We have had differences in the 120 years of our joint effort. But these usually have resulted in growth, not destruction. Today we are facing challenges as great as any in the past. We cannot afford anything less than a truly cooperative effort to find solutions to the national and world food and agriculture problems. This Council has within its membership some of the most distinguished scientists and scientific administrators in America. I am very pleased the Council exists, because I believe that it can realize significant benefits for all of us. I don't come today as a critic; I come as an observer of the potential that is before us. I believe the efforts of the Joint Council will significantly benefit the many cooperators of our food and agriculture system. I firmly believe the Congress intended, in their final deliberations, that this Council be a place where equal partners work to meet our mutual challenges. I am confident that each of you will help make this potential a reality, thank you.



management of science and education activities to his authority. The Assistant Secretary will help shape the role of the Council.

- Secretary Block urged the Council to move ahead with its work and prepare papers to address key issues. The Administration will take advantage of what the Council is doing and values its input.

#### Questions and Answers

Q. (Anderson) We are appreciative of your strong support of research and education. What is your general outlook for the science and education area as the budget gets tighter?

A. (Block) The budget squeeze will continue to tighten. We need to work to hold our own. The future will probably not hold any real growth--we will likely have to do more with less; a better job with fewer resources. We've cut back many USDA reports; we won't print "Food II," but it will be done by the private sector. This reflects not only the attitude of this Administration, but of the public of the United States. We will have to live with it.

Q. (Sledge) Last year you posed to this Council a series of questions, one dealing with human expertise development. What role do you see the new Assistant Secretary playing in bringing into operation the mandates of the 1981 Farm Bill regarding human expertise development.

A. (Block) I'll have to discuss this with the new Assistant Secretary and others to review and evaluate this issue.

Q. (Baldwin) Several times you have indicated support of export activities and support of increased work in developing countries. Our country is doing a lot of research in the international area but it is not well coordinated. Would it be useful if the Joint Council would inventory the needs in this area and recommend a coordination strategy?

A. (Block) Although we probably have done a pretty good job in many countries, we do lack a comprehensive plan. Attempting to tie efforts of USDA, AID, and other groups together gets cumbersome. Perhaps the Council should talk with the new Assistant Secretary about this subject.

Q. (Jordan) Your stock is high with experiment station directors in the States because you recognize the value of a total research program. What is your opinion of policy pronouncement external to your office regarding shifts to basic research? We feel these policy decisions should rest in your office.



- A. (Block) I appreciate that. Certainly different actors (i.e., OMB) have different opinions. This is one of the issues we will need to negotiate. We have broad research responsibilities. Research cannot be limited only to basic--it must have broader application.

18. The following resolution was adopted by the Joint Council:

Whereas, the successful functioning of the Joint Council on Food and Agricultural Sciences is dependent on the availability and service of competent, highly dedicated staff; and

Whereas, the members of the Joint Council on Food and Agricultural Sciences rely on the abilities, energy, and tolerance of the Executive Secretary to the Council for order in arranging and conducting meetings, in communicating meeting results, and in furthering the efforts of special committees and task forces of the Council; and

Whereas, the Joint Council has been fortunate to have the services of such a highly qualified person as Susan Schram as Executive Secretary for the past 2 years; and

Whereas, we understand there has arisen some uncertainty regarding her future in this position;

Therefore, be it resolved that the members of the Joint Council highly commend Susan Schram for her exceptional dedication, service and good natured temperament, as Executive Secretary, in assisting this Council to fulfill its mission and the Council expresses its desire that every consideration be given to make possible her permanent appointment to this position.

19. The next meeting of the Joint Council will be held July 14-16, 1982.